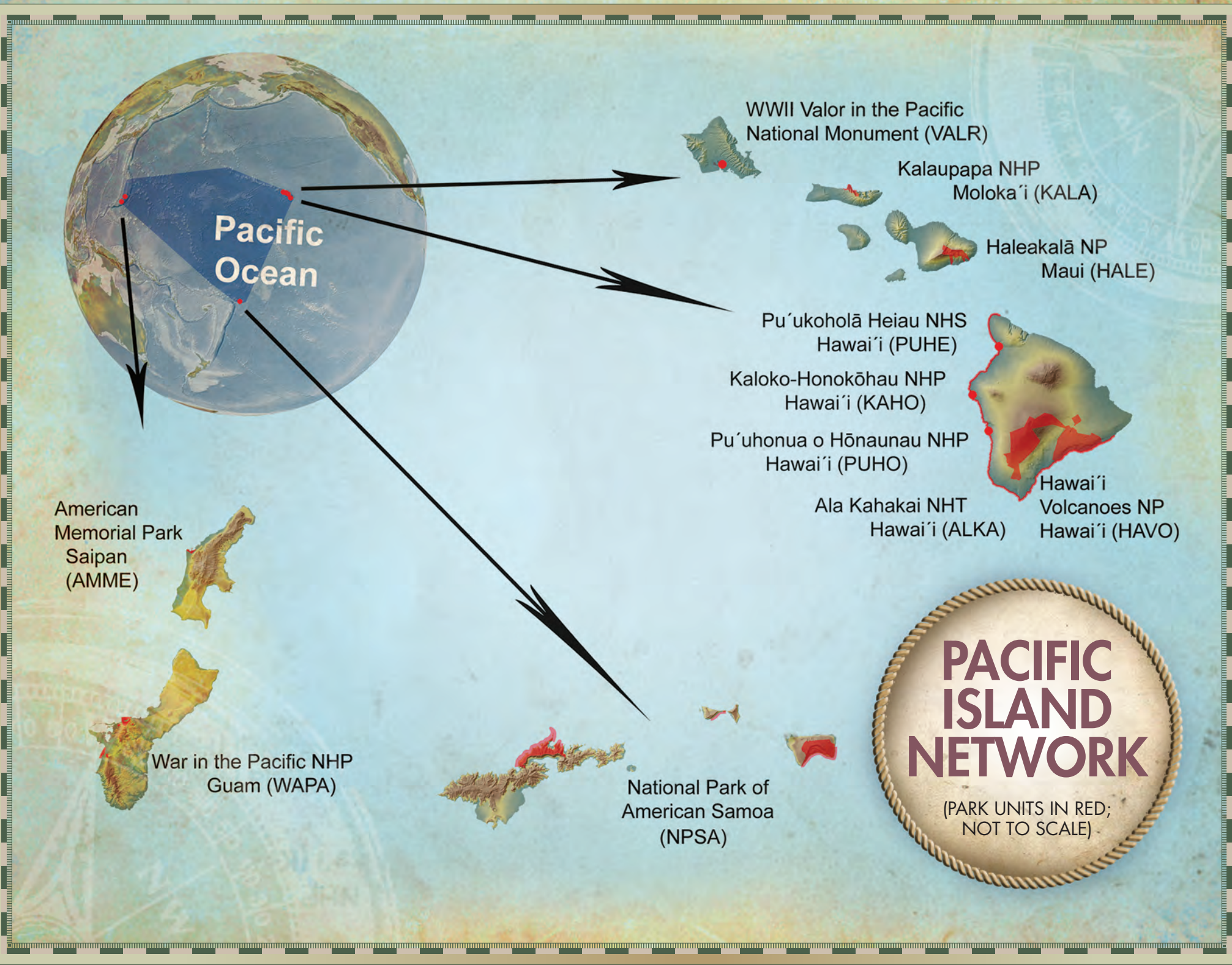
INVASIVE SPECIES

THREATS TO HALEAKALĀ NATIONAL PARK

National Park Service
U.S. Department of the Interior

MISC

2013 CALENDAR


Pacific Ocean
WWII Valor in the Pacific National Monument (VALR)
Kalaupapa NHP Moloka´i (KALA)
Haleakalā NP Maui (HALE)
Pu´ukoholā Heiau NHS Hawai´i (PUHE)
Kaloko-Honokōhau NHP Hawai´i (KAHO)
Pu´uhonua o Hōnaunau NHP Hawai´i (PUHO)
Ala Kahakai NHT Hawai´i (ALKA)
Hawai´i Volcanoes NP Hawai´i (HAVO)
American Memorial Park Saipan (AMME)
War in the Pacific NHP Guam (WAPA)
National Park of American Samoa (NPSA)
PACIFIC ISLAND NETWORK
(PARK UNITS IN RED; NOT TO SCALE)

Invasive Plant Species:
a Threat to Our Islands

ISLAND ECOSYSTEMS are vulnerable to invasion because of the unique species and habitats that evolved in isolation from the rest of the world. Most nonnative plants introduced by people pose no significant threat to native ecosystems, but some nonnative species can establish, spread and permanently alter our coastlines and forests. Plants that become established and spread into native habitats are called invasive.

Invasive plants may reduce native plant diversity and abundance, alter vegetation structure, and can lead to significant economic and cultural costs. In Hawaii alone, invasive species are estimated to have cost $500 million through lost agriculture and property damage. Once established, invasive plants are difficult to control, making prevention and early detection our best hope for protecting our parks.

This calendar features 12 invasive plants. These species are likely to severely impact the native plant communities if they become established. **You can help stop the spread of invasive species by:**

- **being vigilant with new and unusual plants that you do not recognize, start by learning these 12 invaders**
- **cleaning boots, gear and vehicles to stop the spread of invasive seeds, especially in native plant communities**
- **planting and restoring native species and habitats**
- **properly disposing of compost, agricultural, and garden waste that may contain nonnative seeds**
- **never planting or transporting invasive species**

Please use the information in this calendar to help spread the word on the problems invasive species present to the park. An engaged, informed and alert park staff and public remains one of the best ways to detect and prevent the spread of invasive species, and protect our island home.

The Pacific Island Network Inventory and Monitoring Program assists national parks in locating nonnative plants as part of its mission to monitor selected park resources.

TO REPORT AN INVASIVE SPECIES:

Within Haleakalā National Park:

Bill Haus, Biological Technician
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tel. 808-572-4481

Patti Welton, Botanist
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tel. 808-572-4481

Outside of the park on Maui:

Maui Invasive Species Committee
tel. 808-572-6471
Online Pest Reporting:
www.reportapest.org

Pacific Island Network
Inventory & Monitoring Program

PO Box 52
Hawaii National Park, HI 96718
(808) 985-6185 phone
(808) 985-6111 fax
http://science.nature.nps.gov/im/units/pacn/

FOR MORE INFORMATION ON INVASIVE SPECIES:

Hawaii Ecosystems at Risk Project
www.hear.org

Hawaii-Pacific Weed Risk Assessment
www.hpwra.org

Hawaii Invasive Species Council
www.hawaiiinvasivespecies.org

Hawaii Early Detection Network
www.reportapest.org

Front Cover Photo:
Forest & Kim Starr (UH)
Fountain grass (*Cenchrus setaceus*)

Back Cover Photo:
Forest & Kim Starr (UH)
Fireweed (*Senecio madagascariensis*)

fire tree

Morella faya

Be on the lookout for this INVASIVE SPECIES

PHOTO: Forest & Kim Starr (UH)

◄ Fleshy fruits.

PHOTO: Forest & Kim Starr (UH)

▲ Small smooth dark green leaves and clusters of small male flowers.

FIRE TREE is a fast-growing small shrub or tree that grows up to 26-50' tall. Its stems and branches are covered with reddish hairs. Its dark green leaves are 1.5-4.3" long, smooth, and grow in an alternate arrangement along the stem. The leaves are aromatic. Flowers are unisexual and generally born on separate trees. Flowers form on branched spikes among leaves of the current year's growth. Male flowers have four stamens and occur in small hanging clusters near the branch tip. Female flowers occur in groups of three small hanging clusters further from the branch tip. Its fruit is red to purple when ripe, slightly fleshy, has a bumpy appearance, and is found year-round peaking in November.

PHOTO: Forest & Kim Starr (UH)

fire tree

Morella faya

SPECIES TYPE & ORIGIN: Fire tree is a shrub or small tree native to the Azores, Madeira, and the Canary Islands.

IMPACTS: Fire tree can invade both disturbed and intact native ecosystems, where it forms dense stands devoid of other plants. Its leaf litter can inhibit the growth of other plants. As a nitrogen-fixing species, it can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species.

LOCAL DISTRIBUTION & HABITAT: Fire tree was brought to Hawaii in the 1890s as a forestry plant. It is established and spreading in the Haleakalā front country. It can grow in a variety of habitats, including dry scrub land, montane forests, pastures, and open lava.

DISPERSAL MECHANISM: Birds and animals (such as pigs) are attracted to fire tree fruits and can spread the seeds long distances. A mature female tree can produce up to 40,000 fruits per year with each fruit containing 1 to 5 seeds.

CULTIVATION: Fire tree is a Hawaii state noxious weed and is illegal to plant or transport across the state. The Hawaii Chapter of the American Society of Landscape Architects categorizes fire tree as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

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January 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 *New Year's Day*	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 *Martin Luther King, Jr. Day*	22	23	24	25	26
27	28	29	30	31		

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bocconia

Bocconia frutescens

Be on the lookout for this INVASIVE SPECIES

PHOTO: Forest & Kim Starr (UH)

◀ "Plume poppy" flowers during the wet season.

PHOTO: Forest & Kim Starr (UH)

▲ Red pulpy fruit attached to black seeds.

BOCCONIA (TREE POPPY) is the largest member of the poppy family growing to the stature of a small tree (20'). It has large lobed leaves (4-23.5" long by 1.5-8" wide) that are clustered at the branch tips. It produces branched clusters of small beige-yellow flowers that develop into fleshy red fruits (~.2") enclosed in a grey capsule.

PHOTO: Forest & Kim Starr (UH)

bocconia

Bocconia frutescens

SPECIES TYPE & ORIGIN: Bocconia is a shrub or small tree native to Central and South America.

IMPACTS: Bocconia is an aggressive invader of dry forests that can crowd out native plants. One mature plant can produce more than 300,000 seeds per annual fruiting season. It can colonize pastures, degrading grazing quality, and open lava flows, displacing native species. On the Big Island, one cultivated planting in Ka'ū infested 3,500 acres of abandoned agricultural fields.

LOCAL DISTRIBUTION & HABITAT: In Hawaii, bocconia has been introduced on O'ahu, Maui and the Big Island and is a serious pest on Maui and the Big Island. It thrives in leeward dry areas on 'a'ā lava, but is also spreading in the wetter areas of upcountry Maui. Bocconia is widespread in areas of Kula and Kāhikinui that border Haleakalā National Park. It grows in diverse habitats, including dry forest and cloud forest.

DISPERSAL MECHANISM: Bocconia plants produce thousands of seeds, which are attractive to birds that can spread them long distances. It is difficult to manage and can resprout after chemical treatments from its prolific seed bank or small root fragments.

CULTIVATION: Bocconia is grown in gardens. It was first recorded on Maui in 1920. It is a Hawaii state noxious weed and is illegal to plant or transport across the state. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

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February 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 *Groundhog Day*
3	4	5	6	7	8	9
10	11	12	13 *Ash Wednesday*	14 *Valentine's Day*	15	16
17	18 *President's Day*	19	20	21	22	23
24	25	26	27	28		

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common mullein

Verbascum thapsus

Be on the lookout for this INVASIVE SPECIES

PHOTO: Forest & Kim Starr (UH)

◄ Small yellow flowers are formed on spikes up to 10' tall.

PHOTO: Forest & Kim Starr (UH)

▲ Fuzzy leaves, sometimes referred to as "cowboy toilet paper" (up to 20" long).

COMMON MULLEIN is a herbaceous biennial that reaches up to 10' tall by its second year. Leaves range from 3-20" long by 1-5.5" wide and are covered with a dense layer of yellowish or whitish woolly hairs. Initially, the leaves grow in a rosette pattern. After it has bolted the leaves get progressively smaller toward the top. Small yellow flower clusters (.3-.6" long) grow in a random fashion along the center stalk.

PHOTO: Forest & Kim Starr (UH)

common mullein

Verbascum thapsus

SPECIES TYPE & ORIGIN: Common mullein is a biennial herb native to Europe.

IMPACTS: Common mullein can quickly colonize disturbed areas. Plants produce numerous seeds that may remain dormant for over 100 years. On the Big Island, it currently infests high elevation disturbed areas, such as roadsides and new lava flows, with dense stands that can outcompete native vegetation.

LOCAL DISTRIBUTION & HABITAT: Common mullein is cultivated and naturalized in temperate areas of the world, including North America, Hawaii, La Reunion, Australia, and New Zealand. In Hawaii, it can be found on the Big Island along Mauna Kea Summit Access Road from sea level up to 12,460'. It is not known to occur on Maui.

DISPERSAL MECHANISM: Common mullein plants are spread in the horticulture trade and by birds. In Hawaii, there is speculation that seeds are dispersed along roadways by cars and along trails by hikers. Common mullein has been accidentally transported from the Big Island to Maui on infested equipment.

CULTIVATION: Common mullein has been cultivated for medicinal purposes, dyes, fish poison, and as an ornamental. It is a Hawaii state noxious weed and is illegal to plant or transport across the state. The Hawaii Department of Land and Natural Resources considers common mullein one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

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March 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 *Groundhog Day*
3	4	5	6	7	8	9
10 *Daylight Savings Time Begins*	11	12	13	14	15	16
17 *St. Patrick's Day*	18	19	20 *Spring Begins*	21	22	23
24 *Palm Sunday*	25	26	27	28	29 *Good Friday*	30
31 *Easter*						

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Canary Islands St. John's wort

Hypericum canariense

Be on the lookout for this INVASIVE SPECIES

PHOTO: Scott Zona

◄ 5-petaled yellow flower with stamens in the center.

CANARY ISLANDS ST. JOHN'S WORT is a multi-stemmed shrubby plant that grows 3-12' tall. Its lance-shaped leaves (2-2.7" long) grow in an opposite arrangement along the stem with 2-3 leaves at each node. It produces yellow flowers with 5 petals and many yellow whiskery stamens in the center. The fruits are leathery capsules that open and release seeds.

PHOTO: Forest & Kim Starr (UH)

▲ Lance-shaped leaves grow in an opposite arrangement.

PHOTO: Forest & Kim Starr (UH)

Canary Islands St. John's wort

Hypericum canariense

SPECIES TYPE & ORIGIN: Canary Islands St. John's wort is a shrub native to the volcanic Canary Islands and Madeira.

IMPACTS: Canary Islands St. John's wort readily escapes cultivation and can form dense thickets that crowd out other vegetation. In California, this plant outcompetes both native plants and nonnative weeds, such as pampas grass (*Cortaderia* sp.), resulting in nearly 100% single species stands. In favorable conditions, infestations can spread 150-300' a year. It may be poisonous to livestock, like other related hypericum plants.

LOCAL DISTRIBUTION & HABITAT: In Hawaii, Canary Islands St. John's wort is known from one site on Maui, in Kula (175 acres), where it naturalized and spread from the initial infestation. It can grow in mid-range to high elevation grasslands, shrublands, and mesic to dry forests.

DISPERSAL MECHANISM: Canary Islands St. John's wort seeds are wind dispersed and can readily propagate.

CULTIVATION: Canary Islands St. John's wort is grown as an ornamental in private gardens as well as in arboreta. The Hawaii Chapter of the American Society of Landscape Architects categorizes Canary Islands St. John's wort as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated. It should not be confused with the St. John's wort that is used for medicinal purposes.

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April 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22 *Earth Day*	23	24	25	26 *Arbor Day*	27
28	29	30				

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silk oak | kāhili flower

Grevillea spp.

Be on the lookout for this
INVASIVE SPECIES

PHOTO: Forest & Kim Starr (UH)

◀ Showy red flower (*G. banksii*).

PHOTO: Forest & Kim Starr (UH)

▲ Showy yellow flower (*G. robusta*).

SILK OAK (*GREVILLEA ROBUSTA*) and **KĀHILI FLOWER (*GREVILLEA BANKSII*)** are two relatively common invasive trees in the Grevillea genus. Silk oak grows up to 70' and kāhili flower up to 25'. Grevillea trees have deeply lobed wispy leaves (5-12" long) and showy red (*G. banksii*) or yellow (*G. robusta*) flowers.

PHOTO: Forest & Kim Starr (UH)

silk oak, kāhili flower

Grevillea spp.

SPECIES TYPE & ORIGIN: Silk oak and kāhili flower are trees native to Australia, New Guinea, New Caledonia, and Sulawesi.

IMPACTS: Fast-growing and prolific reproducers, many grevillea trees can invade pastures and forests, creating single species stands that can crowd out all other plants. Grevillea trees form shallow proteoid, or cluster roots, which can chemically alter the soil environment, potentially impeding the growth of native Hawaiian plants and enabling further weed invasions. Some species are poisonous to horses and can cause hay fever and allergic contact dermatitis in people.

LOCAL DISTRIBUTION & HABITAT: Silk oak and kāhili flower were introduced to Hawaii in the late 1800s to early 1900s and are now established on all of the main Hawaiian Islands. Grevillea trees threaten both the mid to high elevation wet and mesic forests (kāhili flower) and the dry forest (silk oak).

DISPERSAL MECHANISM: Grevillea trees are prolific seed producers. Seeds can be moved in contaminated soils, muddy vehicles/equipment, and improperly disposed garden waste.

CULTIVATION: Kāhili flower is a Hawaii state noxious weed and is illegal to plant or transport across the state. The Hawaii Department of Land and Natural Resources considers silk oak one of Hawaii's most invasive horticultural plants. The Hawaii Chapter of the American Society of Landscape Architects categorizes silk oak and kāhili flower as a "do not plant" species. Silk oak has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

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May 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 *May Day*	2	3	4
5	6	7	8	9	10	11
12 *Mother's Day*	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27 *Memorial Day*	28	29	30	31	

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miconia

Miconia calvescens

Be on the lookout for this INVASIVE SPECIES

PHOTO: Forest & Kim Starr (UH)

◄ Large leaf with a "leaf within a leaf" vein pattern.

PHOTO: Forest & Kim Starr (UH)

▲ Leaf and fruit.

MICONIA is a fast-growing weedy tree that reaches 13-50'. Its large leaves average 3' long by 1' wide and have a distinctive "leaf within a leaf" vein pattern. The leaves are dark green and felt-like above and purple underneath. Plants produce dark purple fruits that are .3" in diameter and contain hundreds of seeds.

PHOTO: Forest & Kim Starr (UH)

miconia

Miconia calvescens

SPECIES TYPE & ORIGIN: Miconia is a tree native to South and Central America.

IMPACTS: Miconia trees can grow quickly and close together, shading out nearly all other forest plants with their large dark leaves. Miconia has a shallow root system and can cause increased erosion and landslides. It quickly matures, producing fruit after three to four years and flowers and fruits several times a year. Plants produce ten to twenty million seeds a year, which can remain viable for twelve years and possibly longer.

LOCAL DISTRIBUTION & HABITAT: Miconia was introduced to Hawaii as a garden plant in 1961. It has become widespread on Maui in the forests above Hāna to Nāhiku.

DISPERSAL MECHANISM: Birds and animals (such as rats) spread miconia seeds long distances. Seeds, about the size of a sand grain, are unintentionally spread by humans and hitchhike on clothes, boots, gear, pets, and contaminated vehicles, equipment, and soil. Hitchhiking seeds have been moved on hāpu'u fern (*Cibotium* spp.) harvested from infested areas.

CULTIVATION: Miconia was primarily grown as an ornamental plant for arboreta. It is a Hawaii state noxious weed and is illegal to plant or transport across the state.

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June 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14 *Flag Day*	15
16 *Father's Day*	17	18	19	20	21 *Summer Begins*	22
23	24	25	26	27	28	29
30						

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fountain grass

Cenchrus setaceus

Be on the lookout for this
INVASIVE SPECIES

► Leaves do not form flat "blades" like most leaves; they are long and round like wire.

PHOTO: Forest & Kim Starr (UH)

PHOTO: Forest & Kim Starr (UH)

▲ Grows in clumps with long purple to yellow "spikes" that are the flower/seed heads.

FOUNTAIN GRASS is an erect perennial bunch grass that grows up to 3' high. The leaves are greenish-grey and have a slender, cylindrical, rolled shape. The small flowers are grouped together in an upright purple to rose-colored inflorescence that turns white as it seeds. Each inflorescence is 6-15" long.

PHOTO: Eric Guinther

fountain grass

Cenchrus setaceus

SPECIES TYPE & ORIGIN: Fountain grass is a perennial bunch grass native to Africa.

IMPACTS: Originally introduced as an ornamental, fountain grass has become an aggressive, habitat-altering weed. It can degrade the quality of pasture lands, particularly in drier areas. Fountain grass is fire adapted and its dry leaves can increase the risk, intensity and longevity of fires. After a fire, it may resprout faster than native plants.

LOCAL DISTRIBUTION & HABITAT: Fountain grass has invaded many types of natural areas in Hawaii, including bare lava flows, grasslands, and range lands. On the Big Island, fountain grass covers at least 200,000 acres. On Maui it has been found growing in Wailuku, Kahului, Kīhei, Kahakuloa, Wai'ehu, Kula, Kanaio, and Mākena. All known populations on Maui have been controlled by the Maui Invasive Species Committee.

DISPERSAL MECHANISM: Fountain grass is dispersed through the horticultural trade as an ornamental grass. Seeds are also transported via wind, water, and by hitchhiking on vehicles, livestock, and humans.

CULTIVATION: Fountain grass is cultivated for its ornamental attributes. It is a Hawaii state noxious weed and is illegal to plant or transport across the state. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

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July 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4 *Independence Day*	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

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pampas grass

Cortaderia spp.

Be on the lookout for this INVASIVE SPECIES

► Dried, corkscrew-shaped leaves at base of plant.

PHOTO: Maui Invasive Species Committee

PHOTO: Maui Invasive Soecies Committee

▲ 2-3' long flower plume.

PAMPAS GRASS is an erect giant bunch grass with long, slender, bright green, saw-toothed leaves. At its base are dried, corkscrew-shaped leaves. It has large showy flower plumes that extend 2-3' beyond the foliage. Two species of pampas grass are found in Hawaii, *Cortaderia selloana* and *C. jubata*. Both reach heights of 9-10' and have loosely clumped pinkish-white seed heads. They flower from July through November. Spent flower stalks are sometimes persistent for several years.

PHOTO: Maui Invasive Species Committee

pampas grass

Cortaderia spp.

SPECIES TYPE & ORIGIN: Pampas grass is a perennial bunch grass native to South America.

IMPACTS: Pampas grass grows rapidly, produces thousands of seeds per flower plume, and can accumulate large amounts of fire prone biomass. Seeds are viable for 4-6 months, but field evidence from Hawaii suggests viability could be greater. It can crowd out native species, impede access, degrade grazing lands, and create fire hazards.

LOCAL DISTRIBUTION & HABITAT: Pampas grass was introduced to Hawaii as an ornamental. On Maui, this plant has escaped cultivation and spread into pristine, upland native forests within and around Haleakalā Crater. It is found in pastures, gulches, yards, along road cuts, and in remote West Maui locations.

DISPERSAL MECHANISM: Pampas grass seeds are spread by wind and have been documented traveling up to twenty miles away from the parent plant. Humans also disperse seeds on contaminated gear. Flower plumes are sold for dried flower arrangements.

CULTIVATION: Pampas grass is used as an ornamental plant for landscapes and its flower plumes are used for decorations. Pampas is a Hawaii state noxious weed and is illegal to plant or transport across the state. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

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August 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

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fireweed

Senecio madagascariensis

Be on the lookout for this INVASIVE SPECIES

FIREWEED is a daisy-like herb that grows up to 2' high. The stem is upright and slender with bright green leaves. The leaves are smooth, very narrow (only .2-.3" wide), have serrated edges, and they reach about 5" long. The small yellow flowers have 13 petals and are about the size of a nickel. The mature flowers turn into white dandelion-like puff-balls.

PHOTO: Forest & Kim Starr (UH)

PHOTO: Forest & Kim Starr (UH)

◄ Yellow flowers, about the size of a nickel, have 13 petals and look like small daisies.

PHOTO: Forest & Kim Starr (UH)

▲ Seedling.

fireweed

Senecio madagascariensis

SPECIES TYPE & ORIGIN: Fireweed is a short-lived herb (can be annual, biennial, or perennial). It is native to Madagascar and South Africa.

IMPACTS: Fireweed can invade pastures, disturbed areas, and roadsides. It is very toxic to cattle, horses and other livestock. When ingested, it can cause illness, slow overall growth, liver-malfunction and even death in severe cases. In Australia, fireweed costs over $2 million per year in losses and control.

LOCAL DISTRIBUTION & HABITAT: In Hawaii, fireweed was first discovered on the Big Island in the 1900s where it is now too widespread for control. This pest can also be found on Maui and Lāna'i. It thrives in disturbed grasslands, abandoned pastures, and roadsides. Fireweed grows on a wide range of moist to wet soils.

DISPERSAL MECHANISM: Each fireweed plant can produce up to 30,000 seeds per year that are easily spread by wind, hiking boots, vehicles, and animals. Fireweed is also spread unintentionally as a contaminant seed in hydro-mulch and on equipment.

CULTIVATION: Fireweed is a Hawaii state noxious weed and is illegal to plant or transport across the state. The Hawaii Chapter of the American Society of Landscape Architects categorizes fireweed as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

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September 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 *Labor Day*	3	4	5	6	7
8 *Grandparent's Day*	9	10	11	12	13	14
15	16	17	18	19	20	21
22 *Fall Begins*	23	24	25	26	27	28
29	30					

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Australian blackwood

Acacia melanoxylon

Be on the lookout for this
INVASIVE SPECIES

► Curly seed pods (3-5" long).

PHOTO: John Tann

PHOTO: Forest & Kim Starr (UH)

▲ Flowers and stubby "leaves," which are actually modified phylloids (leaf stems).

AUSTRALIAN BLACKWOOD is a medium-sized evergreen tree (up to 40') with a straight trunk, narrow crown, and dense foliage. Mature "leaves" are short, "stubby", and crescent moon-shaped (2.5-4.5" long). Young leaf growth consists of small bipinnately compound leaflets. It has small, cream-colored, puff-ball flowers (.3-.5" diameter). Seed pods are reddish brown, broad, and flat, becoming curled when mature. Seeds have a distinctive thick red border and often hang from the pod by a whitish attachment.

PHOTO: Louisa Billeter

Australian blackwood

Acacia melanoxylon

SPECIES TYPE & ORIGIN: Australian blackwood is a tree native to southeastern Australia.

IMPACTS: Australian blackwood can produce root suckers and form large clonal stands. It can thrive in open grasslands and shrublands and can resprout more quickly than Hawaiian native plants after a fire.

LOCAL DISTRIBUTION & HABITAT: Australian blackwood has been introduced, has naturalized, and is spreading in the pine forests adjacent to Haleakalā National Park and the Waikamoi forest reserve.

DISPERSAL MECHANISM: Australian blackwood trees produce prolific amounts of seeds, which are moved via animals (birds and rats) and human activities. It reproduces in Hawaii primarily from root suckering and regrowth from very small root fragments that are moved in contaminated soils and garden waste.

CULTIVATION: Australian blackwood has been planted as a street tree, even though it causes damage to sidewalks and plumbing. 17,000 trees were planted in state forest reserves in Hawaii. The Hawaii Chapter of the American Society of Landscape Architects categorizes Australian blackwood as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

HOW TO HELP: Report potential sightings within Haleakalā National Park:

Bill Haus Bill_Haus@nps.gov
tel. 808-572-4481

Patti Welton Patti_Welton@nps.gov
tel. 808-572-4481

October 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14 *Columbus Day*	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31 *Halloween*		

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http://science.nature.nps.gov/im/units/pacn/

glycine

Neonotonia wightii

Be on the lookout for this INVASIVE SPECIES

PHOTO: Forest & Kim Starr (UH)

◀ "Leaves of 3" and small white pea-like flowers.

PHOTO: Forest & Kim Starr (UH)

▲ Seed pods look like small edamame.

GLYCINE (TINAROO, PERENNIAL SOYBEAN) is a vigorous climbing vine with a woody base that is a relative of soybean. It has "leaves of three" that are oval and often hairy. Its pea-like flowers are white and small (.4" long). The distinctive hairy seed pods are 1.5" long by .2" wide and grow upright from the stem.

PHOTO: Forest & Kim Starr (UH)

glycine

Neonotonia wightii

SPECIES TYPE & ORIGIN: Glycine is a perennial herbaceous vine native to tropical America.

IMPACTS: Glycine can smother low-lying vegetation, shrubs, and small trees, eventually killing them. This vine can also grow over man-made structures and archaeological sites. Its twining growth can cause entanglement dangers for animals. It can invade both disturbed and intact native ecosystems

LOCAL DISTRIBUTION & HABITAT: Glycine has been introduced throughout the tropics as a cattle fodder. It was introduced by the Soil Conservation Service to the Ulupalakua area of Maui. It has naturalized along roadsides, pasture edges, over open lava flows, and in dry to mesic forests.

DISPERSAL MECHANISM: Glycine reproduces prolifically from seeds. Pieces of stem can take root. Seeds are moved long distances by birds and animals. Plants are moved unintentionally in contaminated garden waste and agricultural fodder, and intentionally for livestock feed.

CULTIVATION: The Hawaii Chapter of the American Society of Landscape Architects categorizes glycine as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

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Patti Welton Patti_Welton@nps.gov
tel. 808-572-4481

November 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3 *Daylight Saving Time Ends*	4	5	6	7	8	9
10	11 *Veteran's Day*	12	13	14	15	16
17	18	19	20	21 *Thanksgiving*	22	23
24	25	26	27	28 *Hanukkah Begins*	29	30

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banana poka

Passiflora tarminiana

Be on the lookout for this
INVASIVE SPECIES

PHOTO: Eric Hunt

◄ Tubular pink flowers that hang from the vine.

BANANA POKA is an aggressive woody vine in the passion fruit family that can grow up to 60' high. It has conspicuous tubular pink flowers (2.4-4.5" across) that hang down from the vine and oblong yellow fruits (3-5" long) filled with an orange pulp and black seeds. Leaves of this vine have 3 deep lobes and are hairy underneath and hairless on top.

PHOTO: Tony Rodd

PHOTO: Forest & Kim Starr (UH)

▲ Oblong yellow fruits (3-5" long).

banana poka

Passiflora tarminiana

SPECIES TYPE & ORIGIN: Banana poka is a woody vine native to the Andes Mountains.

IMPACTS: Banana poka vine can grow into the forest canopy where it may smother vegetation and prevent sunlight from reaching the forest floor, potentially affecting natural regeneration and native diversity. It can also grow over man-made structures and archaeological sites. Its seeds have high rates of germination (up to 220,000 seedlings per acre), both in sunny, open areas and shady, forested areas. Feral pigs may cause damage beneath plants while foraging for banana poka fruits.

LOCAL DISTRIBUTION & HABITAT: Banana poka has been spread throughout the tropics as a garden plant. It was introduced to Hawaii in 1926 and is naturalized in the wild on the islands of Maui, Kaua'i and the Big Island. It can grow in a wide variety of climates and to over 7,000' elevation in its home range, putting it well into the native subalpine shrubland of Haleakalā.

DISPERSAL MECHANISM: The fruits of banana poka are eaten by feral animals, such as pigs, and many types of birds that can carry the seeds long distances.

CULTIVATION: Banana poka is a Hawaii state noxious weed and is illegal to plant or transport across the state. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

HOW TO HELP: Report potential sightings within Haleakalā National Park:

Bill Haus Bill_Haus@nps.gov
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Patti Welton Patti_Welton@nps.gov
tel. 808-572-4481

December 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5 *Hanukkah*	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21 *Winter Begins*
22	23	24	25 *Christmas*	26	27	28
29	30	31				

U.S. Department of Interior - National Park Service
Pacific Island Network — Inventory & Monitoring Program
http://science.nature.nps.gov/im/units/pacn/

TO REPORT AN INVASIVE SPECIES:

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Outside of the park on Maui:

Maui Invasive Species Committee
tel. 808-572-6471
Online Pest Reporting:
www.reportapest.org

FOR MORE INFORMATION ON INVASIVE SPECIES:

Hawaii Ecosystems at Risk Project
www.hear.org

Hawaii-Pacific Weed Risk Assessment
www.hpwra.org

Hawaii Invasive Species Council
www.hawaiiinvasivespecies.org

Hawaii Early Detection Network
www.reportapest.org

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Calendar Design: Hagadone Printing

▸ FIRE TREE

▸ BOCCONIA

▸ COMMON MULLEIN

▸ CANARY ISLANDS ST. JOHN'S WORT

▸ SILK OAK, KĀHILI FLOWER

▸ MICONIA

▸ FOUNTAIN GRASS

▸ PAMPAS GRASS

▸ FIREWEED

▸ AUSTRALIAN BLACKWOOD

▸ GLYCINE

▸ BANANA POKA